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| 10/032,717 | 10/23/2001 | Andre R. Abad | 35718/237005 (5718-118) | 5409 |

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| EXAMINER | |
|---|---|
| KUBELIK, ANNE R | |
| **ART UNIT** | **PAPER NUMBER** |
| 1638 | |

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/032,717 | ABAD ET AL. | |
| | Examiner | Art Unit | |
| | Anne R. Kubelik | 1638 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on 7/27/04.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-3,9-12,17-19,38-40,43-46,49-52 and 55-64 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3,9-12,17-19,38,43,46,49,52 and 55-64 is/are rejected.

7)☒ Claim(s) 39,40,44,45,50 and 51 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. Claims 1-3, 9-12, 17-19, 38-40, 43-46, 49-52 and 55-64 are pending.

2. In view of the Appeal Briefs filed on 27 July 2004 and 10 June 2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below, in part because of the new arguments presented by Applicant After Final, in the Appeal Briefs filed 27 July 2004 and 10 June 2004 and the Response after Final, filed 2 February 2004, and in part because of the new art rejection.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Claim Rejections - 35 USC § 112*

4. Claims 1-3, 9-12, 17-19, 38, 43, 46, 49, 52 and 55-64 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for nucleic acids encoding SEQ ID NO:2 and 10, expression cassettes comprising the nucleic acids, plants and seeds comprising a construct comprising the nucleic acid, and a method of using it to impact a plant pest, does not

reasonably provide enablement for any nucleic acid that has 90% identity to SEQ ID NO:1, expression cassettes comprising the nucleic acid, plants and seeds comprising a construct comprising the nucleic acid and a method of using it to impact a plant pest. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The rejection is modified from the rejection set forth in the Office action mailed 3 December 2003, as applied to claims 1-3, 9-12, 17-19, 38, 42-43,46, 48-49, 52 and 54-64. Applicant's arguments filed 27 July 2004 have been fully considered but they are not persuasive.

The claims are broadly drawn to a nucleic acid that has 90% identity to SEQ ID NO:1, expression cassettes comprising the nucleic acid, plants and seeds comprising a construct comprising the nucleic acid and a method of using it to impact a plant pest.

The instant specification, however, only provides guidance for methods of assaying the activity of *B. thuringiensis* strain 1218 and lysate against Western corn rootworm and Southern corn rootworm (examples 1 and 2); isolation of crystal protein from the strain and assaying of it for pesticidal activity against western corn rootworm (example 3); identification of two coding regions, *Cry1218-1* and *Cry1218-2* (SEQ ID NO:1 and 3, with SEQ ID NOs:27 and 28 as the genomic clones), isolated by unknown methods, as encoding proteins, SEQ ID NOs:2 and 4, respectively, that have homology to Cry8Ba1 (example 4); production of truncated proteins, SEQ ID NOs:16 and 18, encoded by SEQ ID NOs:16 and 18 respectively, in *E. coli* that are active against southern corn rootworm (example 4); and production of maize-preferred coding sequences of a different truncated version of Cry1218-1 - the nucleic acid is SEQ ID NO:9, which encodes SEQ ID NO:10 (example 5). The specification also teaches making mutant versions of truncated Cry1218-1 (SEQ ID NO:16), one of which has a truncated N-terminus

(amino acids 43-663 of SEQ ID NO:16), and the other in which the 4 amino acid sequence NGSR has been inserted after amino acid 164 - all of these mutant proteins are effective against Colorado potato beetle (example 6) and other mutant proteins (SEQ ID NOs:32, 34, 42 and 46) that have added chymotrypsin cleavage sites - all are more effective against southern and western corn rootworm than Cry1218-1 (example 7). The specification also teaches transformation of maize with SEQ ID NO:9 (examples 8 and 9).

The instant specification fails to provide guidance for nucleic acid that has 90% identity to SEQ ID NO:1, expression cassettes comprising the nucleic acid, plants and seeds comprising a construct comprising the nucleic acid and a method of using it to impact a plant pest.

The instant specification fails to provide guidance for which amino acids of SEQ ID NO:2 can be altered and to which other amino acids, and which amino acids must not be changed, to maintain Cry8 activity of the encoded protein. The specification also fails to provide guidance for which amino acids can be deleted and which regions of the protein can tolerate insertions and still produce a functional enzyme.

The specification on pg 28, lines 5-11, suggests making these nucleic acids by making conservative substitutions in the encoded protein. However, making "conservative" substitutions (*e.g.*, substituting one polar amino acid for another, or one acidic one for another) does not produce predictable results. Lazar et al (1988, Mol. Cell. Biol. 8:1247-1252) showed that the "conservative" substitution of glutamic acid for aspartic acid at position 47 reduced biological function of transforming growth factor alpha while "nonconservative" substitutions with alanine or asparagine had no effect (abstract). Similarly, Hill et al (1998, Biochem. Biophys. Res. Comm. 244:573-577) teach that when three histidines that are maintained in ADP-glucose pyrophosphorylase across several species are substituted with the "nonconservative" amino acid

glutamine, there is little effect on enzyme activity, while the substitution of one of those histidines with the "conservative" amino acid arginine drastically reduced enzyme activity (see Table 1). The nucleic acids encoding all these mutated proteins, however, would have much greater than 90% identity to the nucleic acids encoding the original protein.

Given the claim breath, unpredictability, and lack of guidance as discussed above, undue experimentation would have been required by one skilled in the art to develop and evaluate nucleic acids with 90% identity to SEQ ID NO:1 or that hybridizes to SEQ ID NO:1. Making all possible single amino acid substitutions, in an 3621 nucleotide long nucleic acid like that of SEQ ID NO:1 would require making and analyzing $19^{3621}$ nucleic acids; these nucleic acids would have about 99.99% identity to SEQ ID NO:1. Because nucleic acids that have 90% identity to SEQ ID NO:1 would have up to 362 nucleotide substitutions, many more than $19^{3621}$ nucleic acids would need to be made and analyzed.

Furthermore, because nucleic acids that have 90% identity to SEQ ID NO:1 would have up to 362 nucleotide substitutions, they could encode proteins with up to 362 amino acid substitutions; these proteins would have 70% identity to the 1206 amino acid long SEQ ID NO:2. The specification provides no guidance for which 362 amino acids to substitute. Thus, undue trial and error experimentation would be required to make the claimed nucleic acids.

The specification, on pg 65, lines 12-14, indicates that the instant SEQ ID NO:1 has homology to GenBank U04365, which is identical to SEQ ID NO:3 of Michaels et al (1996, US Patent 5,554,534). This nucleotide sequence has 85.1% identity to SEQ ID NO:1; however, it encodes a protein with 79.8% identity to the instant SEQ ID NO:2 (see sequence search report). Thus, this sequence cannot be used as guidance for nucleic acids with 90% identity to SEQ ID

NO:1 and that encodes a protein with 70% identity to SEQ ID NO:2, as encompassed by the full scope of the claims.

As the specification does not describe the transformation of any plant with any nucleic acid with 90% identity to SEQ ID NO:1, undue trial and error experimentation would be required to screen through the myriad of nucleic acids encompassed by the claims and plants transformed therewith, to identify those that could control plant pests, if such plants are even obtainable.

Given the claim breath, unpredictability in the art, undue experimentation, and lack of guidance in the specification as discussed above, the instant invention is not enabled throughout the full scope of the claims.

Applicant urges that guidance is provided as to which sequence alterations can be made and how to assay the pesticidal activity of the proteins can be found on pg 33-38, 18-20, 8, 29, 65-66 and 69 of the specification (Brief pg 4-5).

This is not found persuasive. Pg 18-20 and 33-38 of the specification describe a two truncations of SEQ ID NO:1, suggest inserting trypsin and chymotrypsin digestion sites, and provides general guidance for calculation of homology. The pages also suggest making variants by deleting, substituting or inserting one or more amino acids, but do not provide guidance as to which amino acids to delete, substitute or insert. Neither pg 8 nor 29 provide guidance for which sequence alterations can be made and how to assay the pesticidal activity of the proteins. The only variants taught on pg 65-66 and 69 are truncations and insertion of a few amino acids; variants within the full scope of the claims are not taught.

Applicant urges that Bt toxins are very well-characterized, and that the specification uses Li et al for guidance in making mutations in the Cry8-like proteins, as in Example 6; thus, adequate guidance is provided (Brief pg 5-6).

This is not found persuasive. Li et al only provided guidance for making truncations and insertion of chymotrypsin cleavage sites; Li et al do not provide guidance for making 362 amino acid substitutions in a 1206 amino acid protein.

Applicant urges that the specification teaches several nucleic acids with low percent identity to SEQ ID NO:1 but that encode pesticidal proteins. In Examples 4 and 6, truncated proteins encoded by SEQ ID NO:15 and 19 are described; they have 55% and 51% identity to SEQ ID NO:1, respectively. Example 6 also teaches the truncated protein encoded by SEQ ID NO:11 which also has a four amino insertion in it; SEQ ID NO:11 has 56% identity to SEQ ID NO:1 (Brief pg 6-7).

This is not found persuasive. The specification teaches a fragment, in the form of SEQ ID NO:15, but does not teach an additional sequence. While the query match similarity between the truncated proteins encoded by SEQ ID NO:15 and 19 may be 55% and 51% to SEQ ID NO:1, respectively, the query match value is affected by differences in length of the sequences. The local match similarity between SEQ ID NO:15 and the first half of SEQ ID NO:1 is 100%; thus SEQ ID NO:15 does not teach which amino acids to substitute in SEQ ID NO:2. SEQ ID NO:11 only provides guidance for a single insertion of 4 amino acids in the 669 amino acid long SEQ ID NO:16 and does not provide guidance for nucleic acids encoding proteins with 70% identity to SEQ ID NO:2, which nucleic acids with 90% identity to SEQ ID NO:1 encompass).

Applicant urges that the specification also teaches a maize-optimized sequence (SEQ ID NO:9) that encodes SEQ ID NO:15 but has less than 69% identity with it (Brief pg 7).

This is not found persuasive because no amino acid substitutions were made in the protein sequence encoded by SEQ ID NO:15.

Applicant disagree with the conclusion in the prior Office action that because the specification teaches only a fragment and a single 4 amino acid insertion that the specification is not enabled for the claimed nucleic acids; they urge that because they have provided sequence identity variants that include fragments and amino acid changes they have taught representative species of the claimed genus (Brief pg 7).

This is not found persuasive because Applicant has not provided guidance for making up to 362 amino acid substitutions in a 1206 amino acid protein.

Applicant urges that the quality of experimentation required to make the claimed nucleic acids amounts to two steps, making the nucleic acid and assaying the encoded protein for activity; thus, experimentation is not undue (Brief pg 8).

This is not found persuasive. Assays for the protein are more detailed than assays for enzymatic activity; the latter can often be easily assayed spectrophotographically. The assays detailed in Examples 4, 6 and 7 require expressing the proteins in E. coli, purifying the protein from large scale cultures of the bacteria via affinity chromatography followed by extensive dialysis, and incorporating the protein into the diets of rootworms in replicates of 4, with mortality measured on the $4^{th}$ to $7^{th}$ day (Examples 4, 6 and 7); thus, each assay requires up to two weeks and large quantities of materials. As guidance is not provided for making up to 362 amino acid substitutions in a 1206 amino acid protein, undue trial and error experimentation would be required to make and to assay vast numbers of nucleic acids in order to find any that fell within the scope of the claims.

Applicant urges that it is customary in the art to make and assay sequences, for example by shuffling, as described in US 5,837,458. Applicant also cites Minshull et al and Christians et

al, and urges that these methods are designed to generate and test a very large number of variant sequences (Brief pg 8-9).

This is not found persuasive. US 5,837,458 does not teach how to produce nucleic acids with specific identity to a known sequence, much less to a nucleic acids with 90% identity to a known sequence and that encodes a protein with 70% identity to the original protein, as encompassed by the full scope of the claims. The specification, on pg 29, suggests using GenBank U04365, which is identical to SEQ ID NO:3 of Michaels et al (1996, US Patent 5,554,534), as the other nucleic acid in shuffling; however, this sequence encodes a protein with 79.8% identity to the instant SEQ ID NO:2. Thus, it is unlikely that it could be used to generate a nucleic acid that encodes a protein with 70% identity to SEQ ID NO:2. Minshull et al and Christians et al could not be considered because they were not sent.

Applicant urges that inoperative embodiments do not render the claims invalid and undue experimentation would not required to test a protein for pesticidal activity, as shown in Examples 4, 6 and 7; additionally Lazar et al and Hill et al illustrate that one would be able to determine whether a particular sequence change affected the function of a protein (Brief pg 9-10).

This is not found persuasive. As discussed above, undue trial and error experimentation would be required to make and to assay vast numbers of nucleic acids in order to find any that fell within the scope of the claims. Neither Lazar et al nor Hill et al needed to engage in undue trial and error experimentation; thus, their use in response to an argument about trial and error experimentation is off point.

Applicant urges that enablement is not precluded by necessity for experimentation (Brief pg 10).

This is not found persuasive. Enablement is precluded by undue experimentation, as would be required to make and use nucleic acids within the full scope of the claims.

5. Claims 1-3, 9-12, 17-19, 38, 43, 46, 49, 52 and 55-64 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office action mailed 3 December 2003, as applied to claims 1-3, 9-12, 17-19, 38, 42-43,46, 48-49, 52 and 54-64. Applicant's arguments filed 27 July 2004 have been fully considered but they are not persuasive.

The claims are broadly drawn to a multitude of nucleic acids with 90% identity to SEQ ID NO:1 and that encode a protein pesticidal for at least one pest belonging to the order Coleoptera, expression cassettes comprising the nucleic acid, plants and seeds comprising a construct comprising the nucleic acids, and a method of using them to impact a plant pest. In contrast, the specification only describes a coding sequence from *B. thuringiensis* strain 1218 that comprises SEQ ID NO:1. Applicant does not describe other nucleic acids encompassed by the claims, and the structural features that distinguish all such nucleic acids from other nucleic acids are not provided.

Hence, Applicant has not, in fact, described nucleic acids with 90% identity to SEQ ID NO:1 and that encode a protein pesticidal for at least one pest belonging to the order Coleoptera within the full scope of the claims, and the specification fails to provide an adequate written description of the claimed invention.

Therefore, given the lack of written description in the specification with regard to the structural and physical characteristics of the claimed compositions, it is not clear that Applicant was in possession of the genus claimed at the time this application was filed.

Applicant wonders whether the basis for rejection is the same for nucleic acids with 93, 94 and 95% identity to SEQ ID NO:1 (Brief pg 12).

Nucleic acids with 93% identity to SEQ ID NO:1 could encode proteins with 253 amino acid substitutions in SEQ ID NO:2; nucleic acids with 94% identity to SEQ ID NO:1 could encode proteins with 217 amino acid substitutions in SEQ ID NO:2; and nucleic acids with 95% identity to SEQ ID NO:1 could encode proteins with 181 amino acid substitutions in SEQ ID NO:2. Such nucleic acids are not described in the specification.

Applicant urges that that because the claimed nucleic acids are defined in relation to SEQ ID NO:1, they have provided a structural definition of the sequences, and because they have provide assays for one of skill in that to assess whether those sequences meet the functional limitation of the claims, they have met the requirements of *Eli Lilly* and *Amgen*, also citing *Amgen vs Hoechst*, *Moba* and *Enzo* (Brief pg 12-13).

This is not found persuasive. *Eli Lilly* at pg 1406 states "A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus." A single nucleic acid of SEQ ID NO:1 does not constitute a significant portion of the genus of nucleic acids with 90% identity to SEQ ID NO:1. The specification does not describe the structural features that distinguish nucleic acids with 90% identity to SEQ ID NO:1 that encode pesticidal proteins from nucleic acids with 90% identity to SEQ ID NO:1 that do not

encode pesticidal proteins. *Enzo* states that a deposited sequence meets the written description requirement; no nucleic acid with 90% identity to a known sequence and that encodes a protein with 70% identity to the original protein has been deposited by Applicant, nor has any other nucleic acid within the scope of the claims. In the instant case the knowledge of the art the disclosed function is not sufficiently correlated to a particular, known structure; which 362 amino acids can be substituted in SEQ ID NO:2 is unknown.

Applicant urges that Bt toxins are very well-characterized, and that the specification uses Li et al for guidance in making mutations in the Cry8-like proteins, as in Example 6; thus, adequate guidance is provided (Brief pg 13-14).

This is not found persuasive. Li et al only provided guidance for making truncations and insertion of chymotrypsin cleavage sites; Li et al do not provide guidance for making 362 amino acid substitutions in a 1206 amino acid protein. Additionally, Applicant's arguments are drawn to an enablement rejection, not a written description rejection.

Applicant urges that the specification describes several nucleic acids with low percent identity to SEQ ID NO:1 but that encode pesticidal proteins. In Examples 4 and 6, truncated proteins encoded by SEQ ID NO:15 and 19 are described; they have 55% and 51% identity to SEQ ID NO:1, respectively. Example 6 also teaches the truncated protein encoded by SEQ ID NO:11 which also has a four amino insertion in it; SEQ ID NO:11 has 56% identity to SEQ ID NO:1 (Brief pg 14-15).

This is not found persuasive. While the query match similarity may be 55%, the query match value is affected by differences in length of the sequences. The local match similarity between SEQ ID NO:15 and the first half of SEQ ID NO:1 is 100%; thus SEQ ID NO:15 does not describe nucleic acids encoding proteins with 70% to the full-length of SEQ ID NO:2. SEQ

ID NO:11 only describes a nucleic acid encoding a protein with a single insertion of 4 amino acids in the 669 amino acid long SEQ ID NO:16 and does not describe nucleic acids encoding proteins with 70% identity to SEQ ID NO:2 or nucleic acids with 90, 93 or 94 or 95% identity to SEQ ID NO:1.

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3, 9-12, 17-19, 46, 52, 57 and 60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michaels et al (1996, US Patent 5,554,534).

The claims are drawn to nucleic acids with 90% identity to SEQ ID NO:1 and that encode a protein pesticidal for at least one pest belonging to the order Coleoptera, expression cassettes comprising the nucleic acid, plants and seeds comprising a construct comprising the nucleic acid, and a method of using it to impact a plant pest. The instant claims are drawn to nucleic acids with 90% identity to SEQ ID NO:1, and as those nucleic acids would encode proteins with up to 70% identity to the instant SEQ ID NO:2, as discussed in the 35 USC 112, 1st, rejections above.

Michaels et al disclose the sequence of a scarab-specific Cry protein, their SEQ ID NO:4, which is pesticidal for scarabs belonging to the genus *Cotinus* (column 14, lines 26-44) and claim all nucleic acids encoding that protein (claim 1). Scarabs belong to the order Coleoptera; thus, their SEQ ID NO:4 is pesticidal for at least one pest belonging to the order Coleoptera. The

protein taught by Michaels et al has 79.8% identity to the instant SEQ ID NO:2 (see sequence search report). Michaels et al also disclose microbes transformed with a nucleic acid encoding their SEQ ID NO:4 (claim 4 and column 14, lines 26-44), and propose expression of nucleic acids encoding their SEQ ID NO:4 in plants (column 15, line 5, to column 16, line 35). Michaels et al do not disclose an individual nucleic acid with 90% identity to the instant SEQ ID NO:1.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to that nucleic acids with 90% identity to SEQ ID NO:1 are encompassed within the full scope of nucleic acids encoding the scarab-specific Cry protein taught by Michaels et al.

8. Claims 38-40, 43-45, 49-51nand 55-59 are free of the prior art, given the failure of the prior art to teach or suggest an isolated nucleic acid of SEQ ID NO:1 or encoding SEQ ID NO:2, or as isolated nucleic acid with 93% identity to SEQ ID NO:1, wherein the nucleic acid encodes a protein pesticidal for at least one pest belonging to the order Coleoptera.

9. Claims 39-40, 44-45 and 50-51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. No claim is allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

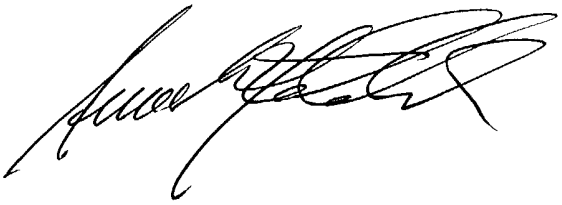
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Anne R. Kubelik, Ph.D.
October 15, 2004



ANNE KUBELIK
PATENT EXAMINER